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[Title of the Invention]	Remote Control Device
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[NAME OF DOCUMENT] SPECIFICATION

[TITLE OF THE INVENTION] REMOTE CONTROL DEVICE

[SCOPE OF CLAIMS]

[CLAIM 1] A remote control device, comprising:

a communication means for receiving information containing a command for setting an operation of a device, the information being transmitted through a transmission line;

a display means for performing display based on the information containing the command for setting an operation of a device, the information being transmitted through the transmission line;

an operation means for operating information for controlling the device, the information being contained in the information transmitted through the transmission line, by designating the display of the display means; and

a remote operation signal generation means for generating a remote operation signal for setting an operation of a device based on the command for setting an operation of a device that is designated by the operation means,

wherein the operation of a device is set by the remote operation signal from the remote operation signal generation means.

[CLAIM 2] The remote control device according to claim 1, characterized in that

manufacturer identification data for each device and/or identification data for each device are/is set in advance, and

when the information for setting the operation of the device is input, an object set by the manufacturer identification data for each device and/or the identification data for each device is transmitted as a remote operation signal, out of remote operation signals corresponding to operations based on the information for controlling the device.

[CLAIM 3] The remote control device according to claim 1, characterized in that when the information for setting the operation of the device is input, remote operation signal of a plurality of manufacturers and a plurality of devices corresponding to operations based on the information for setting the

operation of the device are sequentially transmitted.

[CLAIM 4] The remote control device according to claim 1, characterized in that when the manufacturer identification data for each device and/or the device are/is designated through the transmission line, the remote operation signal of a corresponding manufacturer and/or a device are/is received through the transmission line.

[DETAILED DESCRIPTION OF THE INVENTION]

[0001]

[TECHNICAL FIELD TO WHICH THE INVENTION BELONGS]

The present invention relates to a remote control device suitable for use in operating audio/visual devices such as VTR (Video Tape Recorder) and, in particular, to a remote control device suitable for use in a system for transmitting a broadcast program schedule through a computer network.

[0002]

[PRIOR ART]

VTRs are equipped with program reservation function to automatically record a program of a set channel when the preset time comes. With the program reservation function, for example, a user can record a desired program also during his/her absence, which is very convenient. In program reservation with a conventional VTR, users had to enter the record start time, record end time, and the channel to be recorded while referring to program tables shown on newspapers, magazines, or the like, which was a very complex and time-wasting job for users. In this regard, a new one has been proposed, which enables program reservations only by entering a code (G code) assigned to an individual program. With such a code, it is possible to easily set the start time, end time, channel, and the like of a program by simply entering a code shown on newspapers, magazines, or the like, which is very convenient.

[0003]

[PROBLEMS TO BE SOLVED BY THE INVENTION]

However, in program reservation with conventional VTRs, there is a problem that in a case of individually entering the start time, end time, channel or

the like as well as a case of simply entering a code, program reservation is performed by referring to a program schedule shown on newspapers, magazines or the like and it is impossible to cope with any change in broadcast programs.

[0004]

In a case of play-by-play broadcasting of baseball games, for example, the games often continue beyond scheduled sections of time, and subsequent programs are often deferred by several minutes to several hours. Conventionally, if the start time of a broadcast program is changed in this manner, program reservation has to be reset anew after canceling the former program reservation.

[0005]

Further, the number of channels has been increased remarkably along with recent development of CATV (CAble TeleVision) and satellite broadcasting. When the number of channels is increased along with the development of CATV and satellite broadcasting, it is difficult to print programs of all channels on newspapers, magazines, and the like. Some of CATV channels are local broadcast channels, and some are specialized channels for specific audience. In such cases of the local channels and specialized channels, information on programs is difficult to be provided to all viewers and listeners in the service areas, using newspapers, magazines, or the like.

[0006]

Accordingly, it is an object of the present invention to provide a remote control device capable of easily making a setting for program reservation or the like, and flexibly coping with a change of a program schedule.

[0007]

It is another object of the present invention to provide a remote control device capable of easily making program reservation irrespective of an increase in number of broadcast channels and expansion of service areas.

[0008]

It is still another object of the present invention to provide a remote control device capable of collectively managing an audio/visual system and an electronic device system.

[0009]

[MEANS FOR SOLVING THE PROBLEMS]

The present invention is a remote control device including: a communication means for receiving information containing a command for setting an operation of a device, the information being transmitted through a transmission line; a display means for performing display based on the information containing the command for setting an operation of a device, the information being transmitted through the transmission line; an operation means for operating information for controlling the device, the information being contained in the information transmitted through the transmission line, by designating the display of the display means; and a remote operation signal generation means for generating a remote operation signal for setting an operation of a device based on the command for setting an operation of a device that is designated by the operation means. In the remote control device, the operation of a device is set by the remote operation signal from the remote operation signal generation means.

[0010]

Program information of TV broadcasting and radio broadcasting is provided by WWW services of the Internet. In a hypertext of the WWW, a command for setting an operation of an electronic device is embedded. When a portion in which the command is embedded is clicked, an infrared signal corresponding to the operation of the command is transmitted, and an operation of each electronic device is set.

[0011]

[EMBODIMENTS OF THE INVENTION]

Hereinafter, embodiments of the present invention will be described with reference to the drawings. FIG. 1 shows an example of a system to which the present invention is applied. In FIG. 1, numeral 1 refers to a terrestrial TV broadcasting station, 2 to a satellite TV broadcasting station, and 3 to an FM radio broadcasting station.

[0012]

The terrestrial TV broadcasting station 1 broadcasts TV programs to individual households, using VHF (Very High Frequency) or UHF (Ultra High Frequency) band. The satellite TV broadcasting station 2 broadcasts TV programs to the individual households, using a satellite 4. Since satellite TV broadcasting can cover a wider service area, its service area may be beyond a single country. Additionally, satellite TV broadcasting prepares many channels, and broadcasting for limited audience may be carried out in some cases. The FM radio broadcasting station 3 broadcasts radio programs to the individual households in FM broadcasting. The FM radio broadcasting station 3 includes a small-scaled station that broadcasts local affairs with a low electric power. The system may also include a CATV TV station.

[0013]

Numeral 5 refers to a household audio/visual system. In this example, the household audio/visual system 5 includes a VTR 11, an FM tuner 12, an MD (Mini Disc) player 13, a TV receiver 14, an audio amplifier 15, and speakers 16A, 16B. The VTR 11 having a satellite broadcasting tuner, the FM tuner 12, the MD (Mini Disc) player 13, the TV receiver 14 having a satellite broadcasting tuner, and the audio amplifier 15 that constitute the audio/visual system 5 have light-receiving portions 11A, 12A, 13A, 14A, and 15A, respectively, to be remote-controlled by infrared signals.

[0014]

A TV signal transmitted from the terrestrial TV broadcasting station 1 is received at an antenna 17 of the audio/visual system 5. Output of the antenna 17 is supplied to the VTR 11 and the TV receiver 14, and images based on the TV signal transmitted from the terrestrial TV broadcasting station 1 are displayed on the TV receiver 14. Further, the TV signal transmitted from the terrestrial TV broadcasting station 1 can be recorded on a magnetic tape in the VTR 11.

[0015]

A TV signal transmitted from the satellite TV broadcasting station 2 via the satellite 4 is received by a parabola antenna 18 of the household audio/visual system 5. Output of the parabola antenna 18 is converted into a satellite

medium frequency by a converter (not shown), and supplied to the VTR 11 and the TV receiver 14. Images based on the TV signal transmitted from the satellite TV broadcasting station 2 via the satellite 4 are displayed on the TV receiver 14. Further, the TV signal can be recorded on a magnetic tape in the VTR 11.

[0016]

A radio broadcast signal transmitted from the FM radio station 2 is received in the FM tuner 12. Output of the FM tuner 12 is supplied to the audio amplifier 15. Output of the audio amplifier 15 is output from the speakers 16A and 16B. Further, an audio signal based on the radio broadcast from the FM radio station 2 can be recorded on a mini disc in the MD player 13.

[0017]

In the system to which the present invention is applied, the terrestrial TV broadcasting station 1, the satellite TV broadcasting station 2, and the FM radio broadcasting station 3 also provide information on scheduled broadcast programs to be broadcast by WWW (World Wide Web) through the Internet 6. Thus, it is possible to introduce scheduled broadcast programs not only in characters but also in still or moving images, additionally, with voices.

[0018]

In the system to which the present invention is applied, commands for setting operations of electronic devices can be embedded in WWW pages. By making use of the commands for setting operations of electronic devices that are embedded in the WWW pages, program reservation can be carried out easily while seeing program introduction on WWW pages of individual broadcasting stations.

[0019]

In each household, a personal computer 21 connectable to the Internet 6 is provided. Connected to the personal computer 21 are a display 22, a keyboard 23, and a mouse 24. Further attached to the personal computer 21 is an interface box 25 through an interface such as RS232C and SCSI.

[0020]

The interface box 25 generates an infrared signal based on a command

from the personal computer 22. The interface box 25 is disposed face to face with the VTR 11, the FM tuner 12, the MD player 13, the TV receiver 14, and the audio amplifier 15 that constitute the audio/visual system 5 so that operations of the respective devices of the VTR 11, FM tuner 12, MD player 13, TV receiver 14, and audio amplifier 15 are set by infrared signals from the interface box 25.

[0021]

An application called browser is installed in the household personal computer 21 and the personal computer 21 is connectable to the Internet 6 via a provider, for example. When WWW sites managed by the broadcasting stations 1, 2 and 3 are called up using the browser in the household personal computer 21 and are linked to the WWW pages of the broadcasting stations 1, 2 and 3, information on scheduled broadcast programs of the broadcasting stations 1, 2 and 3 can be obtained. The information is transmitted in form of hypertexts, and may use not only characters but also still or moving images, and voices as well.

[0022]

Further, in the system to which the present invention is applied, commands for setting operation of electronic devices are embedded in the WWW pages. When these commands embedded in the WWW pages are used, it is possible to easily reserve desired programs while confirming scheduled broadcast programs on WWW pages.

[0023]

For example, when the WWW site of the terrestrial TV broadcasting station 1 is called up by using the browser in the household personal computer 21, the WWW page of a broadcast program schedule of that channel as shown in FIG. 2 is shown on the display 22 of the personal computer 21. As shown in FIG. 2, the WWW page provides indications 31A, 31B, and 31C of time schedules of the programs, and indications 32A, 32B, and 32C of contents of the programs. Additionally, commands for recording the programs are embedded in the indications 32A, 32B, and 32C of the programs.

[0024]

A viewer confirms the broadcast program schedule on the day while

seeing the WWW page on the household personal computer 21, and when finding a program he/she wishes to record, clicks the mouse 24 at the indication 32A, 32B, or 32C of the program. Responsively, an infrared signal instructing the VTR 11 to record the program at the indicated time is output from the interface box 25 in FIG. 1. By the infrared signal, the VTR 11 is set in the state of recording reservation for recording the program.

[0025]

This is explained below in greater detail. In the system to which the present invention is applied, WWW pages contain commands for setting operations of electronic devices. For example, the WWW page as shown in FIG. 2 is described in form of a hypertext as shown in FIG. 3. Descriptions in parenthesis, 33A, 33B, and 33C in FIG. 3 are commands for setting operations of electronic device. It should be noted that script languages may be made by using these commands.

[0026]

FIG. 4 shows an example of these commands and operations of these commands. As shown in FIG. 4, these commands are defined in accordance with operations of electronic devices such as a VTR, a TV receiver, and an MD player. For example, a hexadecimal command [00H] sets a stop operation of a VTR, and a hexadecimal command [01H] sets a reproduction operation of the VTR. Electronic devices whose operations can be set by these commands are not limited to audio/visual devices such as a VTR and a TV receiver, and include other various kinds of electronic devices such as an air conditioner and illumination.

[0027]

As shown in FIG. 5 of a functional block diagram of the personal computer 21, when the personal computer 21 is connected to WWW sites of the broadcasting stations 1, 2, and 3, hypertexts containing commands for setting operations of the electronic devices described above are received through the interface 40. Then, the browser application 41 installed in the personal computer 21 processes the hypertexts to link text data, still or moving image data,

audio data, and so forth, and to form a multimedia image. The multimedia image is shown on the display 22 by a display portion 42.

[0028]

Further, when commands for setting operations of the electronic devices as described above are contained in the hypertext, the browser application 41 embeds these commands in the image for display.

[0029]

For example, when the hypertext as shown in FIG. 3 is received, representation as shown in FIG. 2 appears on the display 22 by the browser application 41. Here, commands 33A, 33B, and 33C for setting operations of electronic devices are embedded in the indications 32A, 32B, 32C for program information. For example, portions in which commands are embedded are underlined so that it is possible to recognize that the commands are embedded.

[0030]

It should be noted that portions in which commands are embedded may be shown in a color different from the other portions or in a different kind or different size of font to distinguish from others. It is also possible to display icons 35 that correspond to operations of commands for setting operations of electronic devices as shown in FIG. 6.

[0031]

In FIG. 5, when the indication 32A, 32B, or 32C of the portion in which the command is embedded is clicked by an input portion 43 such as a mouse and a keyboard, the command 33A, 33B, or 33C embedded in the indication 32A, 32B, or 32C is transmitted from a command transmission portion 44 to the interface box 25.

[0032]

Assume that the indication 32A in FIG. 2 is clicked. As shown in FIG. 3, the command [07H, 0AH, 08H] indicated as the command 33A is embedded in the portion of the indication 32A. Therefore, when the indication 32A is clicked, the [07H, 0AH, 08H] embedded therein is transmitted to the interface box 25.

[0033]

As shown in FIG. 4, the command [07H, 0AH, 08H] corresponds to a G code "142". Therefore, the G code "142" is transmitted to the interface box 25.

[0034]

FIG. 7 is a flow chart showing operations at this time in the personal computer 21. As shown in FIG. 7, in receipt of a hypertext containing commands for setting operations of electronic devices (step ST1), a multimedia image linked with a text and still or moving images together is displayed by the browser application 41 (step ST2). It is judged whether any indication portion in which a command is embedded is clicked (step ST3). If any indication portion in which a command is embedded is clicked, the command is transmitted to the interface box 25 (step ST4).

[0035]

The interface box 25 converts the command transmitted as described above into an infrared signal acceptable for the type of each electronic device, and transmits the infrared signal from the interface box 25 to the VTR 11, FM tuner 12, MD player 13, TV receiver 14, and audio amplifier 15 that constitute the audio/visual system 5. Thus, the operations of the respective devices constituting the audio/visual system 5 are set.

[0036]

For example, when the indication 32A in FIG. 2 is clicked, the [07H, 0AH, 08H] embedded therein is received at the interface box 25. The interface box 25 converts the command into an infrared signal for setting the G code "142" for the VTR 11, and transmits the infrared signal to the VTR 11. As a result, the VTR 11 is set to the G code "142".

[0037]

FIG. 8 shows a construction of the interface box 25. As shown in FIG. 8, the interface box 25 has a code storage portion 52. As shown in FIG. 9, the code storage portion 52 stores code data (information on codes and carriers) of infrared signals for respective devices of respective manufacturers. That is, codes and carriers used for controlling devices by infrared signals are different among manufacturers. Even for devices from the same manufacturer, codes and

carriers are different among types or fabrication dates of the devices. The code storage portion 52 stores all code data of devices of manufacturers as shown in FIG. 9.

[0038]

In FIG. 8, a command embedded in a WWW page for setting operations of electronic devices is transmitted from the personal computer 21 to the interface box 25. The command is supplied to a controller 51 via an interface 53. The command is interpreted in the controller 51, and corresponding code data is read out from the code storage portion 52. Output from the code storage portion 52 is supplied to an infrared signal generation portion 54, from which an infrared signal of the code and carrier corresponding to the code data is generated.

[0039]

As described above, codes and carriers for controlling electronic devices are different among manufacturers, and even among devices from the same manufacturer, codes and carriers are different depending on types or fabrication dates. On the other hand, commands transmitted to the interface box 25 are common to operations regardless of manufacturers or types. Therefore, as described above, interpretation of commands and conversion of commands to codes and carriers acceptable for devices of manufacturers are required. Thus, the VTR 11, FM tuner 12, MD player 13, TV receiver 14, and audio amplifier 15 that constitute the audio/visual system 5 must be registered.

[0040]

Registration of electronic devices may be done through the personal computer 21, for example. Registration may be set either upon establishment of the audio/visual system or each time when operations of audio/visual devices are set referring to WWW pages. Also, the registration may be done on the part of the interface box 25.

[0041]

For registration of devices, a type setting menu is first displayed as shown in FIG. 10A. On the type setting menu, a corresponding device among a VTR, a TV receiver, and others is selected. When a corresponding device is

selected, a manufacturer setting menu appears as shown in FIG. 10B. After a manufacturer is set on the manufacturer setting menu, an image for entering a fabrication date appears as shown in FIG. 10C. When a fabrication date is entered here, manufacturer information and information on the fabrication date on the device are entered. In this manner, when manufacturer information and information on the fabrication date on the device are entered, the information is transmitted to the interface box 25 and manufacturer information and information on fabrication dates on respective devices are registered in the interface box 25.

[0042]

FIG. 11 is a flow chart showing the operations at this time. As shown in FIG. 11, upon registration of devices, the type setting menu is first displayed (step ST11). On this setting menu of devices, it is judged whether a VTR, a TV receiver, an MD player/recorder, or any other device is selected (step ST12). When a device is selected, the manufacturer setting menu is then displayed (step ST13). On this manufacturer setting menu, it is judged whether any manufacturer A, B, or C is selected (step ST14). When a manufacturer is selected, a fabrication date entry menu is then displayed (step ST15). On the fabrication date entry menu, it is judged whether any fabrication date is entered (step ST16). When a fabrication date is entered, information on the manufacturer and the fabrication date of the set device is registered in the interface box 25 (step ST17).

[0043]

For example, assume that a manufacturer of the VTR 11 constituting the audio/visual system 5 shown in FIG. 1 is A, and a fabrication date thereof is in a year from 1985 to 1990. Further, assume that a WWW image as shown in FIG. 2 is displayed on the display 22 of the personal computer 21 and the indication 32A is clicked. In this case, a command corresponding to "142" of the G code is transmitted from the personal computer 21 to the interface box 25.

[0044]

In a case of the VTR manufactured by the manufacturer A on the fabrication date between years 1985 and 1990, the code data corresponding to

"142" of the G code is those stored in addresses "A7, A10, A8", as shown in FIG. 9. Therefore, the code data stored at addresses "A7, A10, A8" among code data stored in the code storage portion 52 shown in FIG. 8 is read out.

[0045]

The code data is transmitted to the infrared signal generation portion 54, and an infrared signal from the infrared signal generation portion 54 is transmitted to the VTR 11. As a result, the G code "142" is set in the VTR 11.

[0046]

FIG. 12 is a flow chart showing operations of the interface box 25. As shown in FIG. 12, it is judged whether a command is sent from the personal computer 21 (step ST21). When a command is sent, the command is then interpreted (step ST22). Then, data on manufacturers and fabrication dates of devices registered in advance is called up (step ST23). Based on the information on manufacturers and the information on fabrication dates of devices, code data corresponding to the operation of the command is determined (step ST24). The code data is then read out from the code storage portion 52 (step ST25) and is transmitted as an infrared signal from the infrared signal generation portion 54 (step ST26).

[0047]

It should be noted that although commands for setting operations of electronics device are converted into infrared codes corresponding thereto in the interface box 25 in the above example, this conversion may be done on the part of the personal computer 21.

[0048]

In addition, although manufactures and fabrication dates of devices are registered in advance in the above example, if codes corresponding to individual commands are read out for all types of devices, prior registration of manufacturers and fabrication dates of devices is not necessary.

[0049]

Specifically, as shown in FIG. 13, it is judged whether a command is sent from the personal computer 21 (step ST31). If a command is sent, the command

is interpreted (step ST32). After that, code data for performing operations of codes corresponding to the commands are sequentially read out for all types of devices of all manufacturers (step ST33), and sequentially transmitted as infrared signals from the infrared generation portion 54 (step ST34). In this manner, when the code data for corresponding operations are read out for all types of devices of all manufacturers, one of them is matched to a device constituting the audio/visual system 5, with the result that the operation of the device can be set.

[0050]

It should be noted that since infrared signals have different code systems and carriers among manufacturers, the malfunction of devices hardly occurs even when codes corresponding to all types of devices of all manufacturers are read out sequentially.

[0051]

It should be noted that in the above example, the code storage portion 52 stores all code data of the types of devices of the manufacturers in advance. However, when the codes for all types of all electronic devices are stored, the amount of the codes becomes enormous. Further, infrared signal codes may be changed.

[0052]

In this regard, the code storage portion 52 may be configured to be readable/writable so as to capture code data in the code storage portion 52 by entry from the outside, like a leaning remote controller.

[0053]

Alternatively, the code data may be transferred by WWW of the Internet. For example, as shown in FIG. 14, an indication 36 on manufactures and fabrication dates of VTRs is put on a WWW page for program guide. Embedded in the indication 36 are commands for introducing code data for each type of devices of manufacturers. When a VTR of a desired manufacturer and a desired fabrication date is selected from the indication 36, code data corresponding to the type of devices is downloaded through the Internet 6.

[0054]

FIG. 15 is a flow chart of operations at this time. As shown in FIG. 15, it is judged whether an indication for setting code data is clicked (step ST41). When the indication for setting code data is clicked, a demand to capture that code data is output through the Internet 6 (step ST42). Then, it is judged whether the code data can be received (step ST43), and if so, the code data is downloaded (step ST44).

[0055]

It should be noted that in this case, each broadcasting station shown in FIG. 1 may have a server for supplying code data, or code data may be held in other servers, e.g., those of manufacturers of devices. If code data are held in a server of a manufacturer of a device and a VTR of a desired manufacture and fabrication date is selected from the indication 36, a link is provided to an FTP (File Transfer Protocol) server of the manufacturer. Then, the code data for the electronic device of the manufacturer is downloaded from the FTP server.

[0056]

It should be noted that although the example of FIG. 1 has been explained as using infrared rays issued from the interface box 25 to remote-control the VRT 11, FM tuner 12, MD player 13, TV receiver 14, audio amplifier 15, and the like, of the audio/visual system 5, a wired interface box 28 may be used as shown in FIG. 16. In this case, the personal computer 21 and the audio/visual system 5 including the VTR 11, the FM tuner 12, the MD player 13, the TV receiver 14, the audio amplifier 15, and the like can be bi-directionally connected to each other through the interface box 28.

[0057]

In this manner, in the system to which the present invention is applied, programs of the broadcasting stations 1, 2 and 3 are transmitted using WWW services of the Internet. The schedule of broadcast programs presented by WWW is renewed immediately when any changes occur in the broadcast schedule due to, for example, an extension of time of play-to-play broadcasting of a baseball game, to provide the latest information. Additionally, program reservation can be easily performed by simply clicking a corresponding indication

as described above.

[0058]

Further, the number of channels of TV broadcasting has been increased along with development of satellite broadcasting and CATV. However, since the Internet is an international computer network, by using the Internet, it is possible to give viewers or listeners program schedules of individual channels even when the number of channels increases and service areas extend beyond countries.

[0059]

It should be noted that the use of such a system is not limited to the program reservation or the like. Because commands for setting operations of electronic devices can be easily made by using hypertexts in this manner, this system can be widely used.

[0060]

FIG. 17 shows an application example of the system. In FIG. 17, numeral 101 refers to a TV receiver, 102 refers to an illumination, and 103 refers to an air conditioner. The TV receiver 101, the illumination 102, and the air conditioner 103 have light-receiving portions 101A, 102A, and 103A, respectively. Operations of the TV receiver 101, the illumination 102, and the air conditioner 103 are set by infrared signals from an interface box 104. The interface box 104 is connected to a personal computer 105.

[0061]

Assume that in such a system, a cooling effect by the air conditioner 103 and brightness of the illumination 102 are desirably set to be constantly optimum. In this case, an optimum setting value of the cooling effect by the air conditioner 103 and a setting value of optimum brightness by the illumination 102 are described as commands in a hypertext, by using the personal computer 105.

[0062]

In this manner, commands in the hypertext is sent from the personal computer 105 to the interface box 104, and infrared signals corresponding to the commands in the hypertext are output from the interface box 104. As a result, the illumination 102 and the air conditioner 103 can be set to be optimum states.

[0063]

Moreover, when the personal computer 105 is connectable to an external portable computer 107 through the Internet 106, the TV receiver 101, the illumination 102, the air conditioner 113, and the like can be controlled from the outside through the external portable computer 107.

[0064]

Specifically, a hypertext containing a command for setting the TV receiver 101, the illumination 102, or the air conditioner 103 is created on the exterior personal computer 107. The hypertext is then sent from the exterior portable computer 107 to the personal computer 105 through the Internet 106. Upon transmission of the hypertext, the interface box 104 outputs an infrared signal corresponding to the command in the hypertext, with the result that an operation of the TV receiver 101, the illumination 102, or the air conditioner 103 is set.

[0065]

[EFFECT OF THE INVENTION]

According to the present invention, information on broadcast programs is provided by WWW services of the Internet. Since WWW can transfer information based on a hypertext through the network and can deal with information including not only text data but also image data and audio data, when a program schedule is provided by WWW, program guides can be shown not only in characters but also in still or moving images with voices. Since the Internet is an international computer network system, it is available for all program guides from those of satellite broadcasting for wider service areas beyond countries to those of mini FM stations for very small service areas. Additionally, the use of WWW can present renewed latest program schedules.

[0066]

Moreover, according to the present invention, commands for setting operations of electronic devices are embedded in WWW pages from broadcasting stations. When a portion in which a command is embedded is clicked, an infrared signal corresponding to the command is transmitted, and an operation of

each electronic device is set. As a result, it is possible to easily make reservation of a program while seeing a WWW page, for example. Further, since commands for setting operations of electronic devices can be embedded in WWW pages, audio/visual systems or electronic device systems can be collectively managed by using the commands.

[BRIEF DESCRIPTION OF THE DRAWINGS]

[FIG. 1]

A schematic diagram used for explaining an example of an electronic device system to which the present invention is applied.

[FIG. 2]

A schematic diagram used for explaining a display screen in the example of the electronic device system to which the present invention is applied.

[FIG. 3]

A schematic diagram used for explaining a hypertext in the example of the electronic device system to which the present invention is applied.

[FIG. 4]

A schematic diagram used for explaining a command in the example of the electronic device system to which the present invention is applied.

[FIG. 5]

A functional block diagram used for explaining an operation of a computer in the example of the electronic device system to which the present invention is applied.

[FIG. 6]

A schematic diagram used for explaining a display screen in the example of the electronic device system to which the present invention is applied.

[FIG. 7]

A flow chart used for explaining an operation of a computer in the example of the electronic device system to which the present invention is applied.

[FIG. 8]

A block diagram used for explaining an interface box in the example of the electronic device system to which the present invention is applied.

[FIG. 9]

A schematic diagram used for explaining a code of the interface box in the example of the electronic device system to which the present invention is applied.

[FIGS. 10]

Schematic diagrams used for explaining the interface box in the example of the electronic device system to which the present invention is applied.

[FIGS. 11]

A flow chart used for explaining an operation of the interface box in the example of the electronic device system to which the present invention is applied.

[FIG. 12]

A flow chart used for explaining an operation of the interface box in the example of the electronic device system to which the present invention is applied.

[FIG. 13]

A flow chart used for explaining an operation of the interface box in the example of the electronic device system to which the present invention is applied.

[FIG. 14]

A schematic diagram used for explaining the interface box in the example of the electronic device system to which the present invention is applied.

[FIG. 15]

A flow chart used for explaining an operation of the interface box in the example of the electronic device system to which the present invention is applied.

[FIG. 16]

A schematic diagram used for explaining another example of the electronic device system to which the present invention is applied.

[FIG. 17]

A schematic diagram used for explaining still another example of the electronic device system to which the present invention is applied.

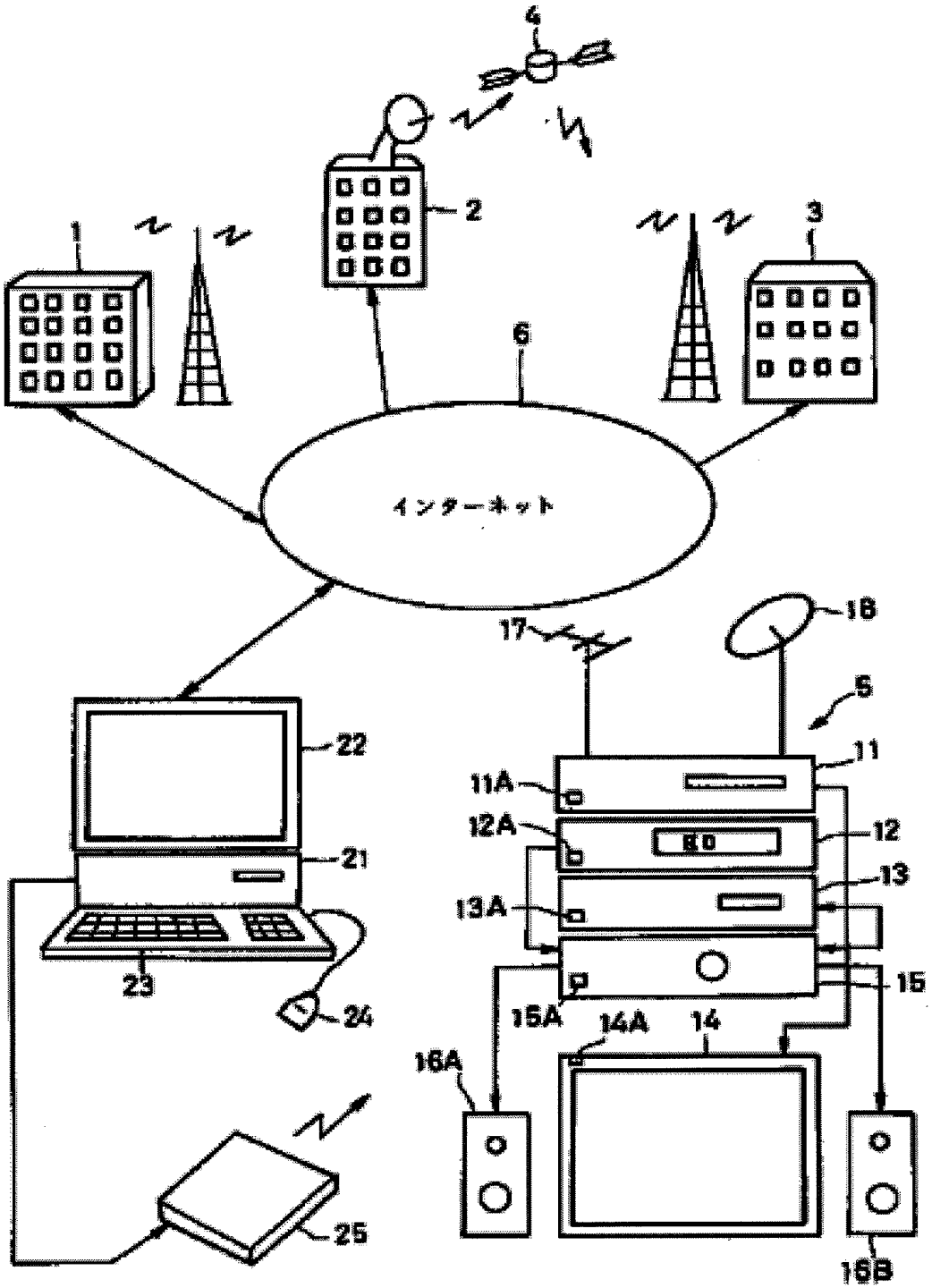
[DESCRIPTION OF REFERENCE SYMBOLS]

1, 2, 3	broadcasting station
6	internet

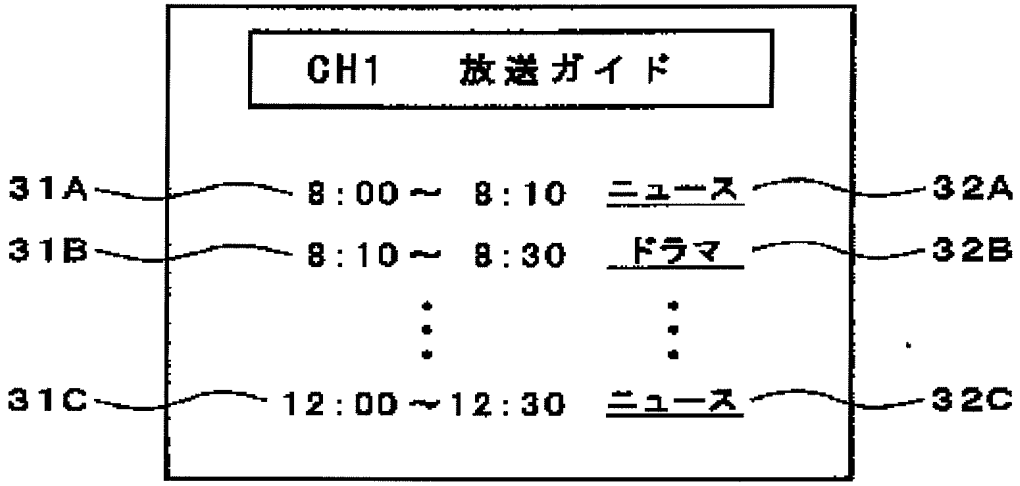
11, 12, 13, 14, 15	device
21	personal computer
25	interface box

【書類名】　　図面

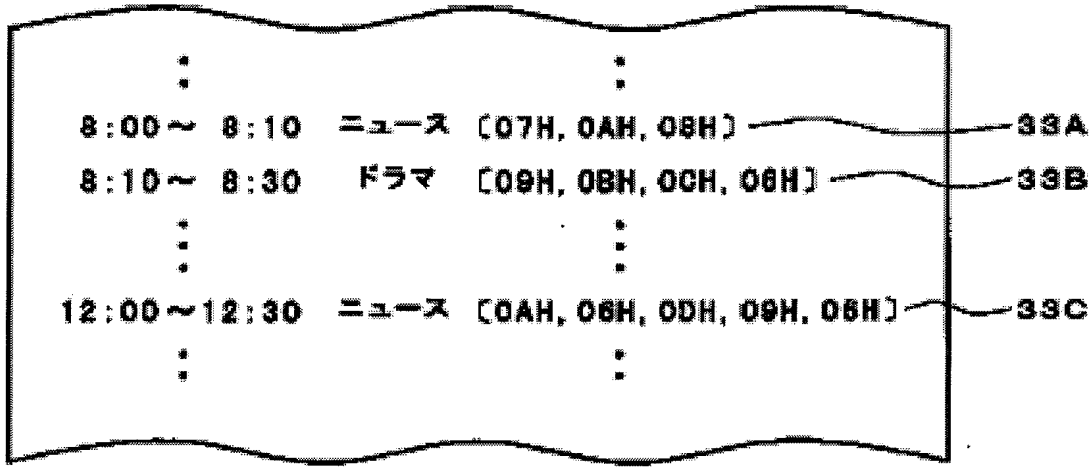
【図１】


4
2
1
3
6
インターネット
17
18
5
22
11
11A
12A
12
21
13
13A
15
23
24
15A
14A
14
16A
25
16B

【図２】


CH1　放送ガイド
31A
8:00～ 8:10 ニュース
32A
31B
8:10～ 8:30 ドラマ
32B
31C
12:00～12:30 ニュース
32C

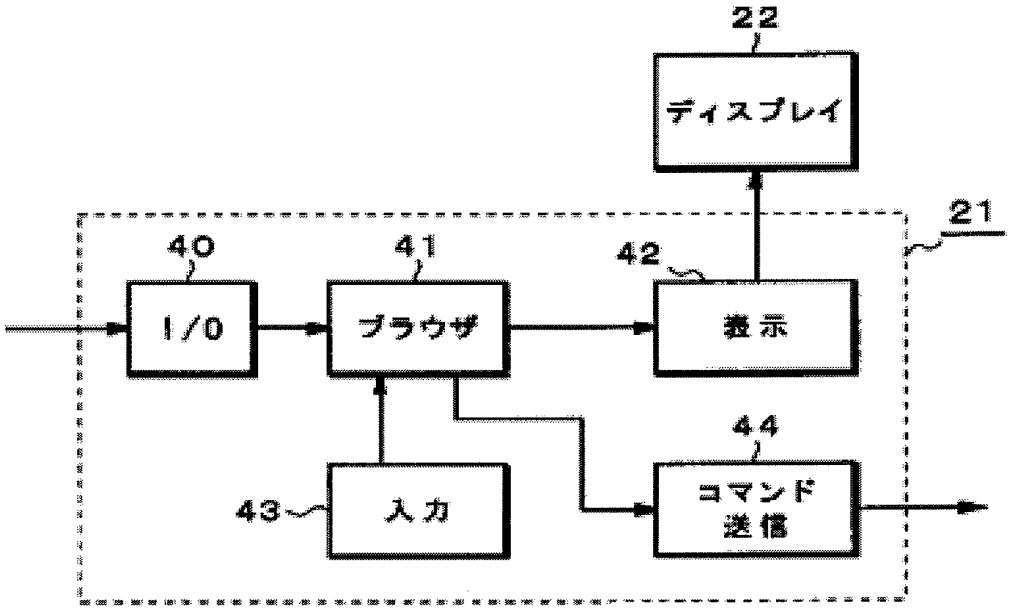
【図３】


8:00～ 8:10 ニュース 〔07H, 0AH, 08H〕
33A
8:10～ 8:30 ドラマ 〔09H, 0BH, 0CH, 06H〕
33B
12:00～12:30 ニュース 〔0AH, 06H, 0DH, 09H, 05H〕
33C

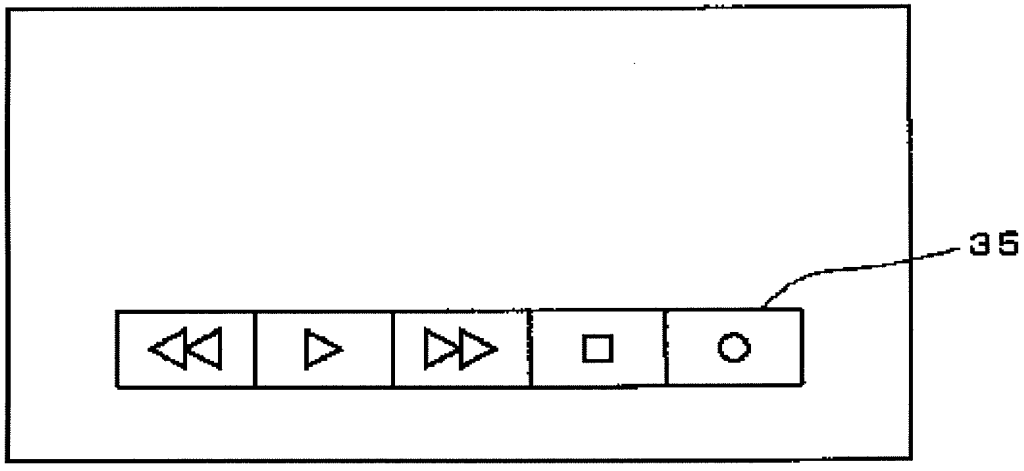
【図４】

コマンド	動　作
00H	VTR ストップ
01H	VTR 再生
02H	VTR 巻戻し
03H	VTR 早送り
04H	VTR 録画
05H	VTR 電源
06H	Gコード　0
07H	Gコード　1
08H	Gコード　2
09H	Gコード　3
0AH	Gコード　4
⋮	⋮
10H	TV　電源
11H	TV　CH1
12H	TV　CH2
13H	TV　CH3
14H	TV　CH4
⋮	⋮
20H	MD　ストップ
21H	MD　再生
22H	MD　記録
⋮	⋮
50H	エアコン オン
51H	エアコン オフ

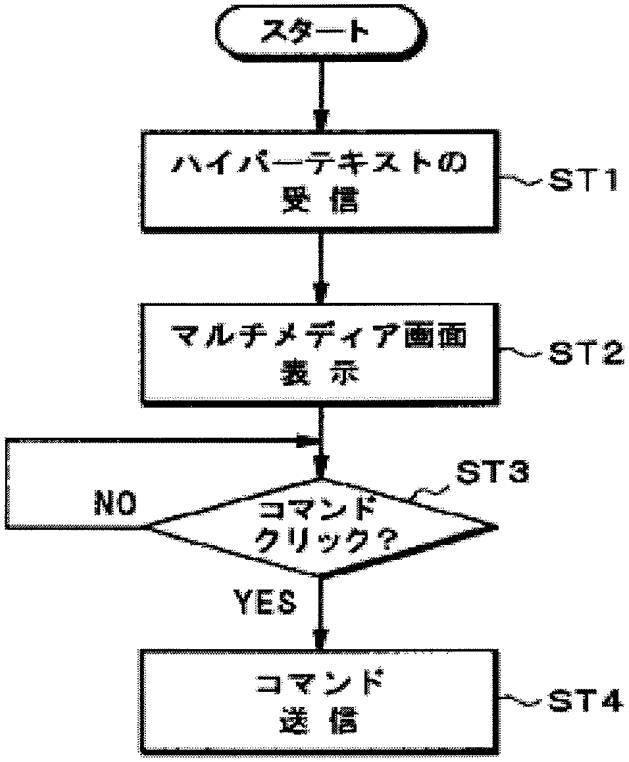
【図５】



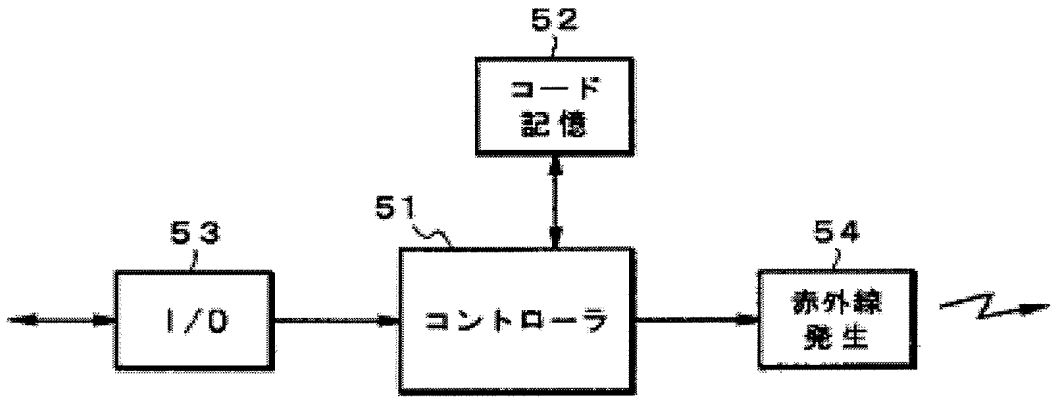
【図６】



【図７】


スタート
ハイパーテキストの受信
ST1
マルチメディア画面表示
ST2
ST3
NO
コマンドクリック？
YES
コマンド送信
ST4

【図８】

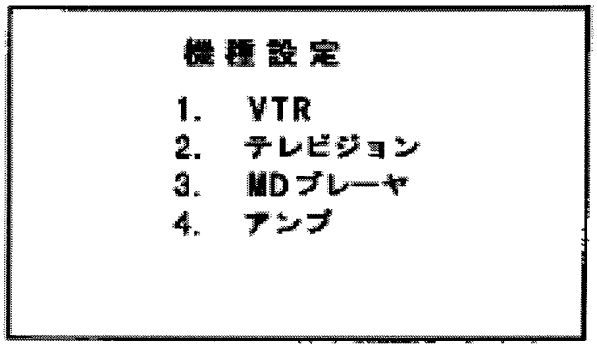

52
コード記憶
51
53
54
I/O
コントローラ
赤外線発生

【図９】

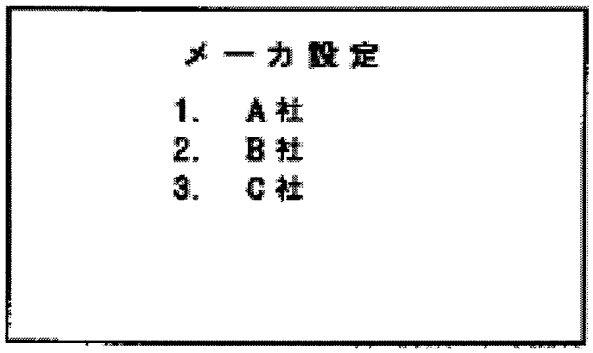
アドレス	コードデータ		
A0	A社 VTR	1985～1990	VTR ストップ
A1			VTR 再生
A2			VTR 巻戻し
A3			VTR 早送り
A4			VTR 録画
A5			VTR 電源
A6			Gコード 0
A7			Gコード 1
A8			Gコード 2
A9			Gコード 3
A10			Gコード 4
・・・・・			・・・・・
A20	A社 VTR	1990～	VTR ストップ
A21			VTR 再生
・・・・・			・・・・・
A40	B社 VTR	1990～	VTR ストップ
A41			VTR 再生
・・・・・			・・・・・
・・・・・	・・・・	・・・・	・・・・・
A100	A社 TV	1985～1990	TV 電源
A101			TV CH1
A102			TV CH2
・・・			・・・

【図１０】

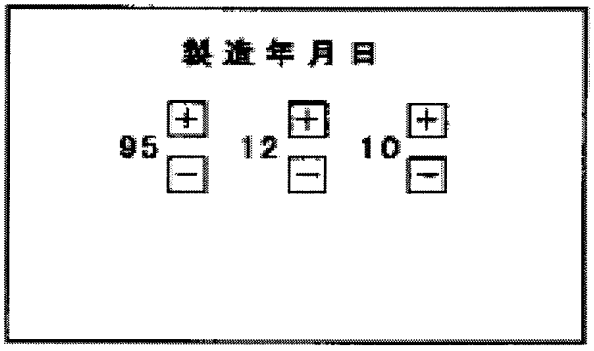
A


機種設定
1. VTR
2. テレビジョン
3. MDプレーヤ
4. アンプ

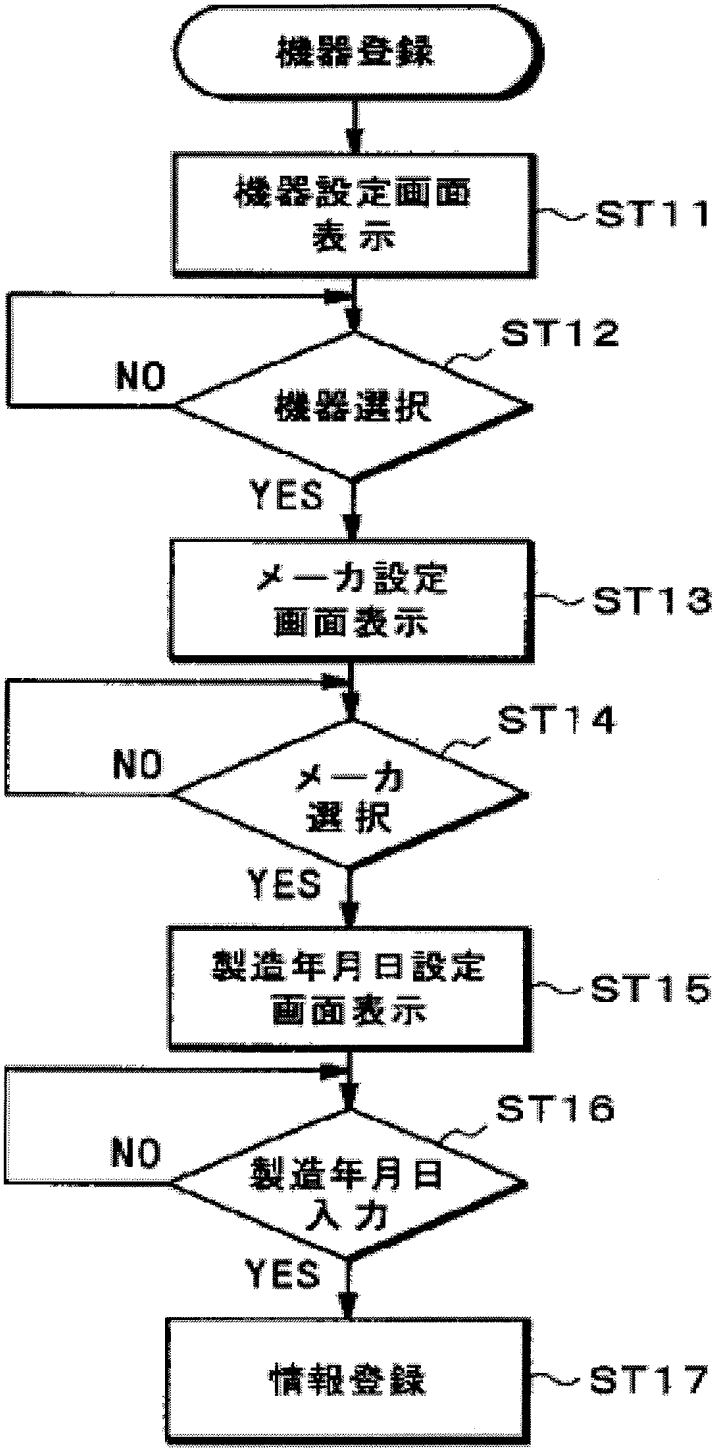
B


メーカ設定
1. A社
2. B社
3. C社

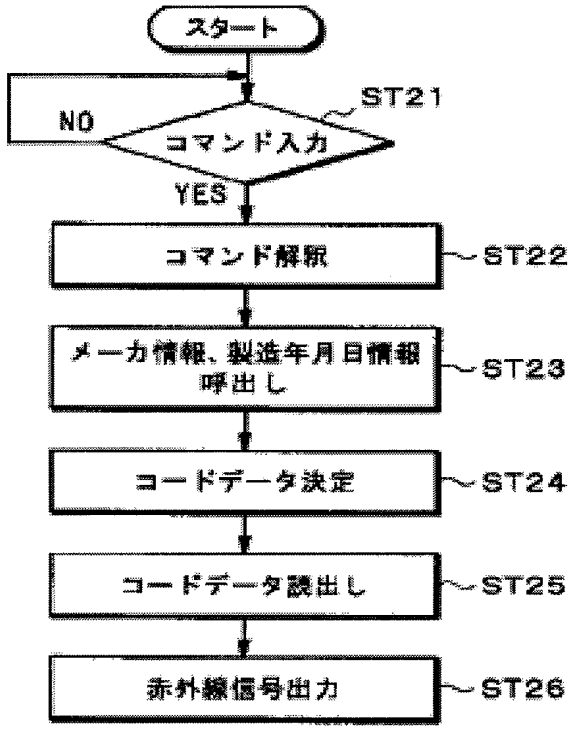
C


製造年月日
95
12
10

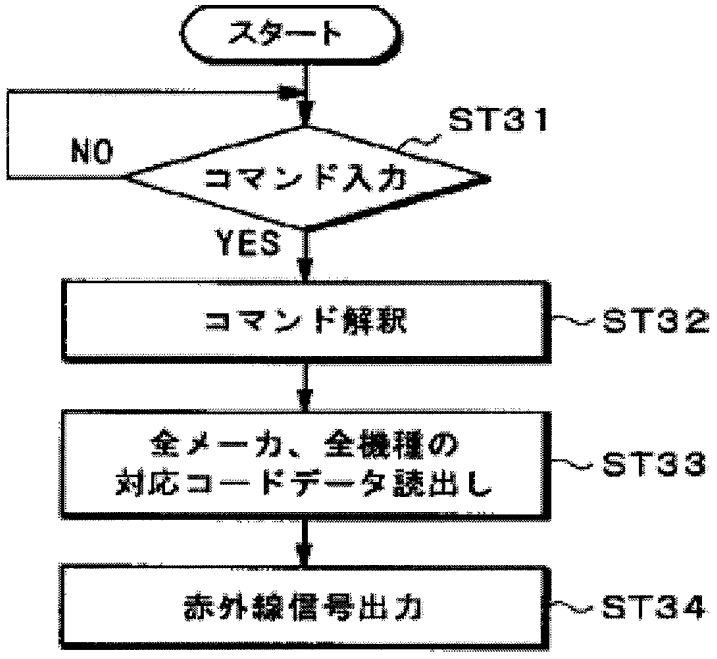
【図１１】


機器登録
機器設定画面
表示
ST11
ST12
NO
機器選択
YES
メーカ設定
画面表示
ST13
ST14
NO
メーカ
選択
YES
製造年月日設定
画面表示
ST15
ST16
NO
製造年月日
入力
YES
情報登録
ST17

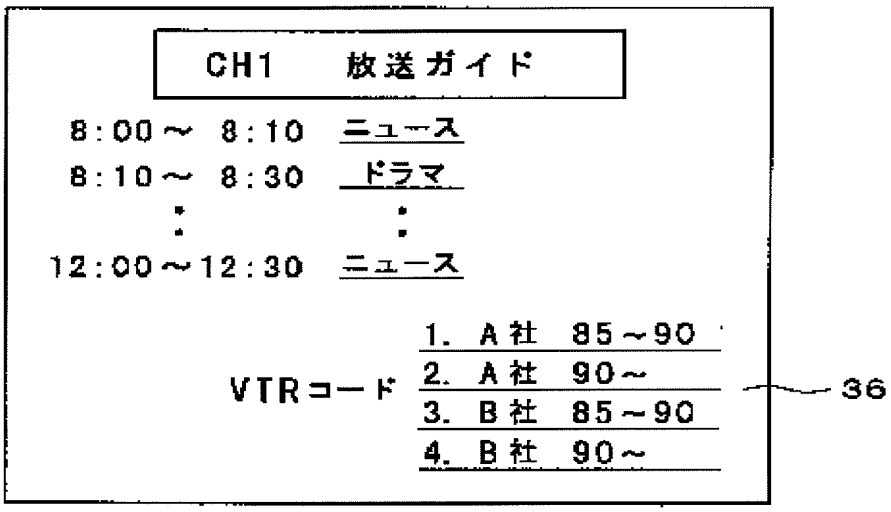
【図１２】


スタート
ST21
NO
コマンド入力
YES
コマンド解釈
ST22
メーカ情報、製造年月日情報
呼出し
ST23
コードデータ決定
ST24
コードデータ読出し
ST25
赤外線信号出力
ST26

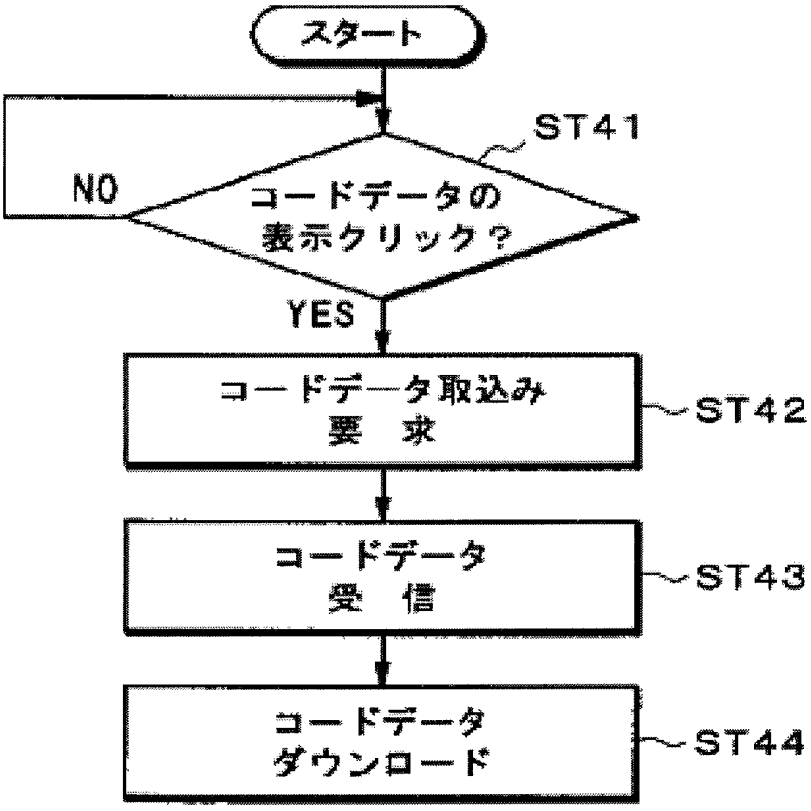
【図１３】


スタート
ST31
NO
コマンド入力
YES
コマンド解釈
ST32
全メーカ、全機種の
対応コードデータ読出し
ST33
赤外線信号出力
ST34

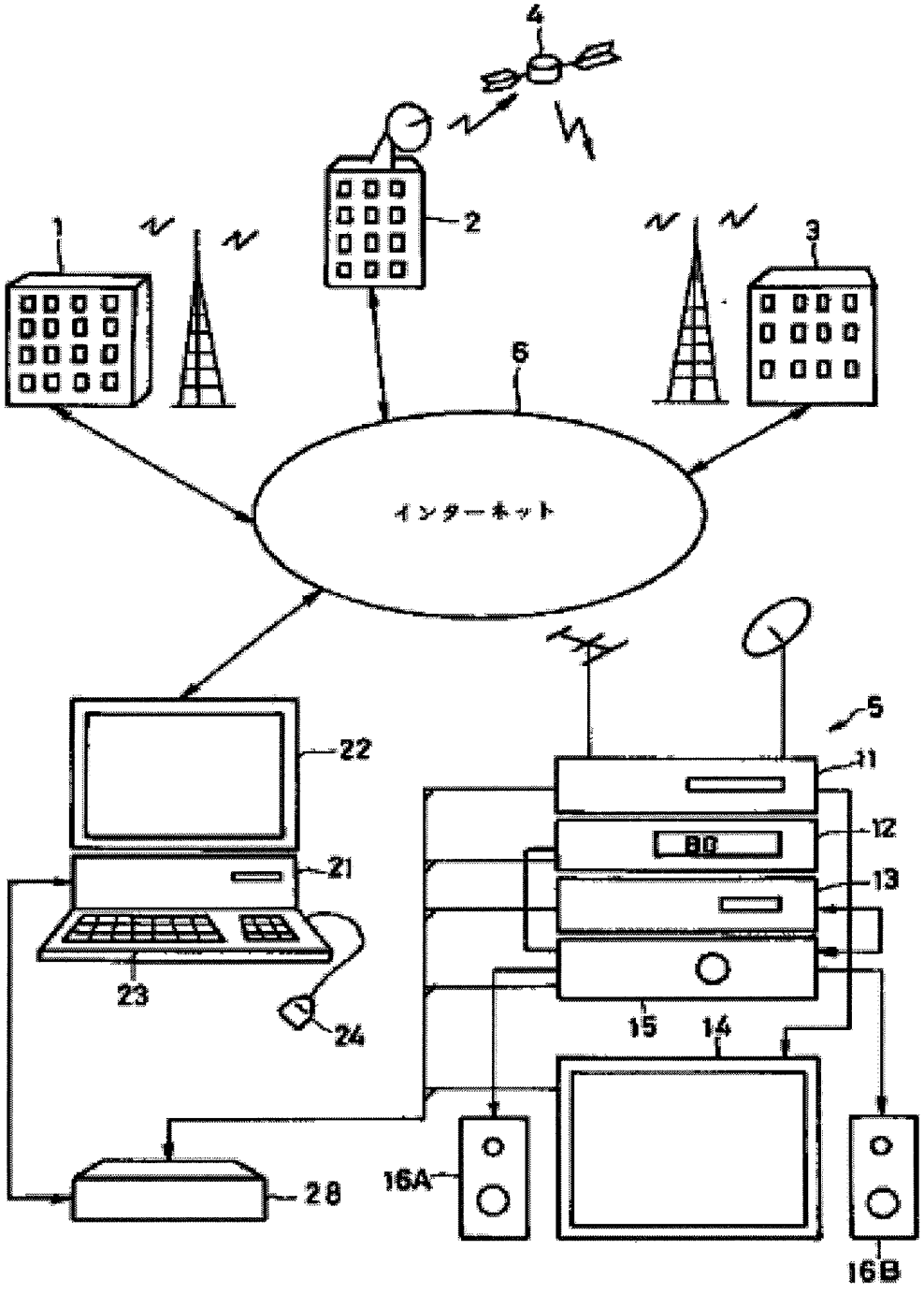
【図１４】


CH1　放送ガイド
8:00～ 8:10 ニュース
8:10～ 8:30 ドラマ
12:00～12:30 ニュース
VTRコード
1. A社 85～90
2. A社 90～
3. B社 85～90
4. B社 90～
36

【図１５】

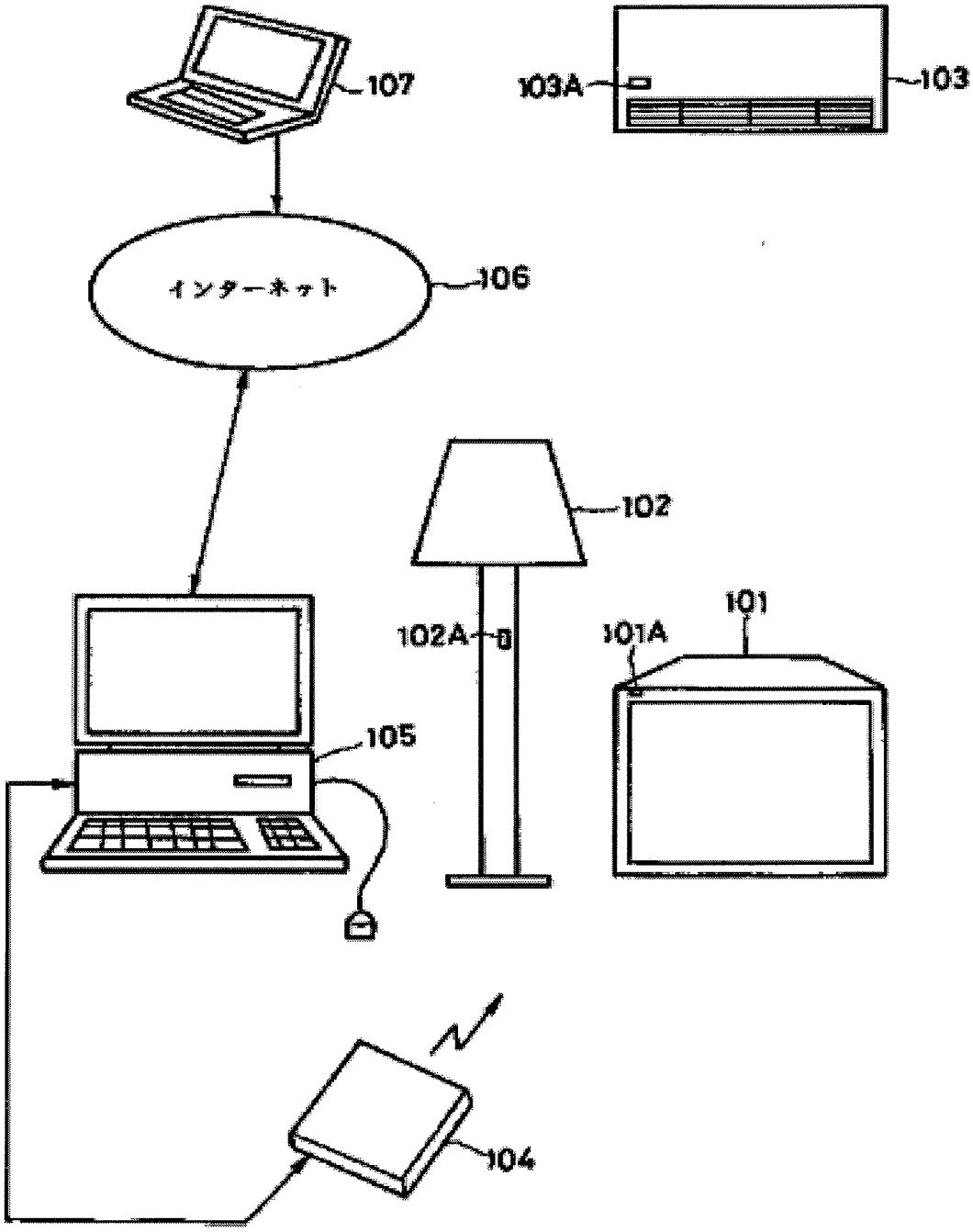

スタート
ST41
NO
コードデータの
表示クリック？
YES
コードデータ取込み
要　求
ST42
コードデータ
受　信
ST43
コードデータ
ダウンロード
ST44

【図１６】



5

【図１７】



5

[NAME OF DOCUMENT] DRAWINGS

[Fig. 1]

6	Internet

[Fig. 2]

32A	News
32B	Drama
32C	News

[Fig. 3]

33A	News
33B	Drama
33C	News

[Fig. 4]

コマンド	Command
動作	Operation
00H	VTR stop
01H	VTR reproduction
02H	VTR rewind
03H	VTR fast-forward
04H	VTR recording
05H	VTR power
06H	G code 0
07H	G code 1
08H	G code 2
09H	G code 3
0AH	G code 4
10H	TV power
20H	MD stop
21H	MD reproduction

22H	MD recording
50H	Air conditioner on
51H	Air conditioner off

[Fig. 5]

22	Display
41	Browser
42	Display
43	Input
44	Command transmission

[Fig. 6]

[Fig. 7]

スタート	Start
ST1	Receive hypertext
ST2	Display multimedia images
ST3	Command clicked?
ST4	Send command

[Fig. 8]

51	Controller
52	Code storage
54	Infrared generation

[Fig. 9]

アドレス	Address
コードデータ	Code data
A社	Manufacturer A
B社	Manufacturer B
ＶＴＲストップ	VTR stop

ＶＴＲ再生	VTR reproduction
ＶＴＲ巻戻し	VTR rewind
ＶＴＲ早送り	VTR fast-forward
ＶＴＲ録画	VTR recording
ＶＴＲ電源	VTR power
Ｇコード０	G code 0
Ｇコード１	G code 1
Ｇコード２	G code 2
Ｇコード３	G code 3
Ｇコード４	G code 4
ＴＶ電源	TV power

[Fig. 10]

機種設定	Setting of device type
テレビジョン	TV
ＭＤプレーヤ	MD player
アンプ	Amplifier
メーカ設定	Setting of manufacturer
Ａ社	Manufacturer A
Ｂ社	Manufacturer B
Ｃ社	Manufacturer C
製造年月日	Fabrication date

[Fig. 11]

機器登録	Register device
ST11	Display device setting screen
ST12	Select device
ST13	Display manufacturer setting screen
ST14	Select manufacturer
ST15	Display fabrication date setting screen
ST16	Enter fabrication date

ST17 Register information

[Fig. 12]

スタート Start

ST21 Enter command

ST22 Interpret command

ST23 Call up information on manufacturer and fabrication date

ST24 Determine code data

ST25 Read out code data

ST26 Output infrared signal

[Fig. 13]

スタート Start

ST31 Enter command

ST32 Interpret command

ST33 Read out corresponding code data of all manufacturers and all types of devices

ST34 Output infrared signal

[Fig. 14]

放送ガイド Broadcast guide

ニュース News

ドラマ Drama

ＶＴＲコード VTR code

Ａ社 Manufacturer A

Ｂ社 Manufacturer B

[Fig. 15]

スタート Start

ST41 Code data indication clicked?

ST42 Request to capture code data

ST43	Receive code data
ST44	Download code data

[Fig. 16]

6	Internet

[Fig. 17]

106	Internet

[NAME OF DOCUMENT] ABSTRACT

[SUMMARY]

[OBJECT] To easily make a setting for program reservation or the like, and flexibly cope with a change of a program schedule. To collectively manage an audio/visual system and an electronic device system.

[MEANS FOR SOLVING]

Through the Internet (6), commands for setting operations of devices are transmitted in a form of hypertexts by using WWW. When a portion of a command in a WWW page is clicked, the command is sent to an interface box (25) and an infrared signal based on the command is output from the interface box (25). By the infrared signal, operations of devices (11 to 15) are set. Accordingly, it is possible to easily make reservation of a program while seeing a WWW page, for example. Further, since the commands for setting operations of devices can be embedded in WWW pages, an audio/visual system or an electronic device system can be collectively managed by using the commands.

[SELECTED DRAWING] Figure 1